of medicine and practitioners will greatly appreciate the paragraphs at the end of each chapter on the anomalies occurring in the different organs under discussion. This feature alone will recommend the work as particularly valuable as a text-book for medical men. The illustrations are numerous, well chosen, and well made, and contain a number of photogravures showing actual conditions. The last chapter of the work on teratogenesis materially aids in explaining the causes and method of development of those strange conditions so puzzling to the average practitioner of medicine.

H. H. C.

DIE WURMFORTSATZ-ENTZUNDUNG: EINE PATHOLOGISCH-HISTOLOGISCHE UND PATHOGENETISCHE STUDIE. (APPENDICITIS: A PATHOLOGICO-HISTOLOGICAL AND PATHOGENETIC STUDY). By L. ASCHOFF, Professor of General Pathology and Pathological Anatomy in Freiburg i. B., Germany. Pp. 114; 18 lithographic plates and 22 figures in the text. Jena: Gustav Fischer, 1908.

THIS monograph, the result of seven years' work, is based on a study of one thousand appendices removed at operation by the author's surgical colleagues, Rotter, Enderlen, Küttner, Kraske, and Krönig. Six hundred of these appendices have been studied with the utmost precision. The preparation of the volume was undertaken for two reasons: (1) Because so many papers and discussions on appendicitis show misinformation of the pathology and ignorance of the normal anatomy of the appendix; (2) because these later studies serve to confirm the conclusions published by Aschoff four years ago. In the limits allotted to this review it will be impossible to do more than very briefly outline the author's views, which differ in many points very materially from those usually taught.

Aschoff holds that all cases of appendicitis are similar, in that the same pathological stages occur in each. The first lesion ("Primärinfekt") in his experience has *never* been a catarrhal inflammation of the appendix: *always* he has found a localized inflammatory reaction in the depths of one of the crypts or recesses of the lumen of the appendix. This Primärinfekt, which is more often multiple than solitary, does not consist in an exfoliation of epithelium in the nature of an erosion or ulcer; it is a round-cell infiltration of neutrophiles under the epithelium of the crypt, and if the epithelium itself is altered at all, its place is taken by a plug of leukocytes and fibrin. The lymphatic follicles are not involved; but from the focus of primary infection the inflammatory reaction quickly spreads along the lymph channels to the serous coat, which may be widely inflamed before any extension in the mucosa occurs. This second or

phlegmonous stage may pass on into the formation of miliary intramural abscesses; these may perforate either into the lumen of the appendix or into the peritoneal cavity—miliary perforations. To this stage succeeds that of ulceration, which he has never seen unless preceded by the phlegmonous. The ulceration of the mucosa may result in perforation (macroscopic perforations), or in gangrene of the appendicular wall, owing to circulatory disturbances.

The pathogenesis of appendicitis consists in the localization of the primary focus in the distal end of the appendix, largely owing to stagnation of the contents of the appendix from the physiological kink in the middle third of the organ. Aschoff supports the enterogenous theory of infection, as opposed to the hematogenous: yet he declares that the inflammation does not extend as a catarrh from the cecum, since this and the proximal part of the appendix almost invariably are uninflamed. He thinks coproliths harmless in an appendix, and is inclined to regard them rather as the result than the cause of inflammation; but they may be a cause of relapsing appendicitis by favoring infection through mechanical trauma. They frequently are produced by stagnation of the appendicular contents between two strictures left by previous inflammation. Usually the severest inflammation is distal to the concretion, not over it; and perforation on its distal side is by no means rare. His bacteriological studies have shown the presence of diplococci (streptococci) as the primary infection; he never found Gram-negative bacilli (colon bacilli) in the Primärinfekt.

He denies the existence of a chronic appendicitis without previous acute stages similar in all respects to those described. The symptoms may have been insignificant, but the histological picture of such cases of chronic appendicitis convinces him that the pathological process was the same in all. Likewise, appendicitis obliterans is regarded as the result of ulcerative changes secondary to a phlegmonous stage, itself inaugurated by the primary infection of one or more crypts. Hemorrhages and the so-called hemorrhagic appendicitis he regards as artefacts due to operation.

We should have been satisfied if the pathologist had concluded his manuscript at this point. The exposition of his views as to the treatment of appendicitis impels one to apply the proverb, "*Ne sutor ultra crepidam.*" His argument for medical treatment (opium), by which he hopes to prevent general peritonitis by favoring the formation of an abscess in all cases in which recovery without perforation does not occur, appears to consist in urging the inclusion in the statistics of recoveries after medical treatment of all those cases which present so insignificant symptoms as never hitherto to have been considered frank attacks of appendicitis. The only *raison d'être* which he admits for operative removal of the appendix is the prevention of other attacks, which he regards as nearly inevitable.

A. P. C. A.